

THAT WHICH IS CLAIMED IS:

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1. An optically amplified receiver comprising:

an optical preamplifier for receiving an optical communications signal over a fiber optic communications line;

a bandpass filter operatively connected to said optical preamplifier for receiving the optical communications signal, selecting a single channel, and filtering out noise produced by the optical preamplifier;

a PIN detector for receiving the optical communications signal from said bandpass filter and converting the optical communications signal into an electrical communications signal; and

an amplifier circuit for amplifying the electrical communications signal.

2. An optically amplified receiver according to Claim 1, wherein said band pass filter comprises a tunable bandpass filter.

3. An optically amplified receiver according to Claim 1, wherein said PIN diode is operative at about 3.3 volts.

4. An optically amplified receiver according to Claim 1, and further comprising a laser for pumping the optical preamplifier and a laser driver interfaced with the laser used for pumping the optical preamplifier.

5. An optically amplified receiver according to Claim 4, wherein said laser driver further

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an optical preamplifier for receiving an optical communications signal over an optical communications line;

10           a PIN detector for receiving said optical  
communications signal from said optical preamplifier  
and converting the optical communications signal into  
an electrical communications signal;

one of either a housing or printer card assembly containing said optical preamplifier, PIN detector and amplifier circuit as an integrated receiver assembly.

13. An optically amplified receiver according to Claim 11, wherein said PIN diode is operative at about 3.3 volts.

14. An optically amplified receiver according to Claim 11, and further comprising a laser for pumping the optical preamplifier and a laser driver interfaced with the laser used for pumping the optical preamplifier.

16. An optically amplified receiver according to Claim 12, wherein said optical preamplifier is connected to a single wavelength optical communications line.

18. An optically amplified receiver according to Claim 17, and further comprising a demultiplexer operatively connected to said preamplifier for demultiplexing the wavelength division multiplexed optical communications signal.

19. An optically amplified receiver according to Claim 12, wherein said amplifier circuit comprises an electronic limiting amplifier for reshaping the electrical communications signal.

20. An optically amplified receiver according to Claim 19, wherein said amplifier circuit comprises a decision circuit and clock recovery circuit for retiming the electrical communication signal.

21. An optically amplified receiver comprising:

a low noise, gain flattened, erbium doped optical preamplifier for receiving an optical communications signal over an optical communications line;

a bandpass filter operatively connected to said optical preamplifier for receiving the optical communications signal, selecting a single channel, and filtering out noise produced by the optical preamplifier;

a laser driver operatively connected to said optical preamplifier and bandpass filter for driving said preamplifier and comprising,

an injection laser diode;

a current source control loop circuit connected to said injection laser diode that establishes a fixed current through the injection laser diode; and

a voltage switcher circuit connected to said injection diode and current source control loop circuit, said voltage switcher circuit adapted to receive a fixed supply voltage and convert inductively the supply voltage down to a forward voltage to bias the laser diode and produce an optical output into the preamplifier having minimized power losses; and

an optical-to-electrical conversion circuit operatively connected to said preamplifier for converting the optical communications signal into an electrical communication signal.

22. An optically amplified receiver according to Claim 21, and further comprising one of either a housing or printed circuit card assembly containing said optical preamplifier, bandpass filter,

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23. An optically amplified receiver according to Claim 21, wherein said bandpass filter comprises a tunable bandpass filter.

24. An optically amplified receiver according to Claim 21, wherein said optical-to-electrical conversion circuit comprises a PIN detector.

26. An optically amplified receiver according to Claim 21, wherein said optical communications signal received over said optical communications line comprises a wavelength division multiplexed signal.

27. An optically amplified receiver comprising:

a low noise, gain flattened erbium doped optical preamplifier for receiving a wave division multiplexed optical signal over a single optical communications line;

a bandpass filter operatively connected to  
said optical preamplifier for receiving the optical  
signal, selecting a channel, and filtering out noise  
10 produced by the optical preamplifier;

an injection laser diode;

a current source control loop circuit

a voltage switcher circuit/ connected to

a demultiplexer circuit operatively connected

a plurality of receiver channels for

an optical-to-electrical conversion circuit

28./ An optically amplified receiver

29. An optically amplified receiver,  
according to Claim 28, wherein said bandpass filter  
comprises a tunable bandpass filter.

30. An optically amplified receiver according to Claim 28, wherein said optical-to-electrical conversion circuit comprises a PIN detector.

31. An optically amplified receiver according to Claim 28, wherein said optical-to-electrical conversion circuit comprises an amplifier circuit connected to said PIN detector for amplifying any electrical communications signals.